



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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<b>(21) International Application Number:</b> PCT/US99/12298 <b>(22) International Filing Date:</b> 3 June 1999 (03.06.99)  <b>(30) Priority Data:</b> 60/087,908      4 June 1998 (04.06.98)      US  <b>(71) Applicant (for all designated States except US):</b> THE GOVERNMENT OF THE UNITED STATES OF AMERICA as represented by THE SECRETARY OF THE DEPARTMENT OF HEALTH AND HUMAN SERVICES [US/US]; Centers for Disease Control and Prevention, N.E. Room 500, 255 East Paces Ferry Road, Atlanta, GA 30333 (US).  <b>(72) Inventor; and</b> <b>(75) Inventor/Applicant (for US only):</b> CHANG, Gwong-Jen, J. [US/US]; 4237 Beaver Creek Drive, Ft. Collins, CO 80526 (US).  <b>(74) Agents:</b> SAMPLES, Kenneth, H. et al.; Fitch, Even, Tabin & Flannery, Suite 1600, 120 South LaSalle Street, Chicago, IL 60603-3406 (US).		<b>(81) Designated States:</b> AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>
<b>(54) Title:</b> NUCLEIC ACID VACCINES FOR PREVENTION OF FLAVIVIRUS INFECTION  <b>(57) Abstract</b> <p>The invention encompasses nucleic acid molecules containing transcription units which encode the flavivirus M and E protein antigens. The flaviviruses include Japanese encephalitis virus, dengue, yellow fever virus and St. Louis encephalitis virus. The nucleic acids function to provide the M and E protein antigens when the nucleic acid resides in an appropriate host cell, especially when the host cell is the cell of a subject. The invention also encompasses a vaccine whose active agent is the nucleic acid. The invention further encompasses the cultured host cells when they contain within them nucleic acid molecules containing the transcription units. The invention in addition encompasses a method of immunizing a subject against flavivirus infection by administering to the subject an effective amount of a vaccine containing a nucleic acid molecule containing the transcription unit of the invention.</p>		